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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/575,560	05/21/2000	Paul Ferguson	A0312/7409/SJH	1265

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Steven J. Henry
Wolf Greenfield & Sacks PC
600 Atlantic Avenue
Boston, MA 02210

EXAMINER

PHAN, TRONG Q

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/575,560

Applicant(s)

FERGUSON ET AL.

Examiner

TRONG PHAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 10-15, 25, 26 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 16-24, 27-29 and 31-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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Drawings

1. The corrected drawings received on 12/26/02 are approved.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **reference voltage Vref (line 26, page 13); non-overlapping four phase clock (line 9, page 27)**. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 1-9, 16-24, 27-29 and 31-40 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification fails to comply with the enablement requirement as follow:

a) it is not understood how the switched capacitor, the sub DACs, elements QDAC1 to QDACN and the charge sharing network in Fig. 4 are interconnected with each other since the interconnecting relationship is not described in the specification as well as is shown in any drawings of the present invention; it is not understood what all the components are really forming the charge sharing network in Fig. 4 and how they are really interconnected with each other since they not described in the specification as well as are shown in the drawings of the present invention;

b) it is not understood what the signal waveform $P1 + P2$ in Fig. 5 of the present invention really is since it is not shown in the drawings of the present invention;

c) it is not understood what the P3 in Figs. 28A-B is really used for since it is seen to be standing alone without associated with any element; it is not understood how conductor 454 is provided to supply the phase signal P2 (line 31, page 29) since P2 is not seen in Figs. 28A-B;

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d) all equations in Figs. 7A-C, 8A-D, 12A-C, 14A-C, 19A-C, 33A-C and 34A-C are not understood since the label V_{ref} is not shown in the drawings of the present invention;

e) it is not understood what the labels Selectable gain, Voltage output and external CAP in Fig. 30 really are since they are not described in the specification;

f) it is not understood how each of the switches 202, 204, 206, 208, S4, S49 and S50 in Fig. 15 is having one open terminal;

g) it is not understood how each of switches S43 and 48 in Fig. 16A is having one open terminal;

h) it is not understood what the label NC in Figs. 17, 21-22 and 25 really is since it is not described in the specification;

i) it is not understood what the four arrows on the right side of scrambler 400 in Fig. 24 really are since they are not described in the specification;

j) it is not understood what $P1 + \text{bit1}.P2$, $P1 + \text{bit2}.P2$, $P1 + \text{bit3}.P2$ and $P1 + \text{bit4}.P2$ in Fig. 31 really are and how they are generated since they are not described in the specification and their signal waveforms are not shown in the drawings of the present invention.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-9 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fling et al., 4,591,832, in view of Mehta et al., 4,205,203.

Fling et al., 4,591,832, discloses in Fig. 1 a system comprising: signal preconditioner 12 for providing multi-bit digital signal (see lines 60-62, column 4; lines 36-46, column 5) such as digital samples of PCM binary samples, for example, in the luminance signal processing channel of a digital TV receiver (see lines 34-36, column 2) to the common input of both DACs 16 and 18 connected in parallel (see lines 42-48, column 2); therefore, the first output analog signal 20 from the first DAC 16 is seen to be indicative of a sum of values of the input digital samples of PCM binary samples from signal preconditioner 12; and, alternately, the second output analog signal 22 from the second DAC 18 is seen to be indicative of a sum of values of the input digital samples of PCM binary samples from signal preconditioner 12 thereof;

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summing circuit 24 for producing the system common output signal at terminal 25.

Additionally, Mehta et al., 4,205,203, discloses the teaching of using pulse code modulation PCM samples in digital to analog converter in an apparatus for digitally signaling sounds and tones in a PCM multiplex system (see the title; line 37, column 1) in the form of multi-bit binary word (see lines 56-58, column 5; line 8, column 7).

In view of the above teaching of Mehta et al., 4,205,203, the input digital samples of PCM binary samples in the luminance signal processing channel of a digital TV receiver provided to the common input of both DACs 16 and 18 in Fig. 1 of Fling et al., 4,591,832, would have been obviously in the form of multi-bit digital signal as recited in claims 1-9 and 34-37.

8. Claim 27 is, insofar as understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita, 5,890,432, in view of Dingwall et al., 5,332,997.

Yamashita, 5,890,432, discloses in Fig. 4 a handset for a mobile communication system comprising:
input stage 105 receiving multi-bit digital signals TxD1 to TxDQ;
digital to analog converter D/A 307;

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What is not shown in Yamashita , 5,890,432, is the switched capacitor network having a plurality of DACs as recited in claim 27.

Dingwall et al., 5,332,997, discloses in Fig. 6 a system having a switched capacitor D/A converter network comprising a plurality of DACs 11 which each has a detailed structure, as shown in Fig. 2, comprising a plurality of capacitors C0-C5 sharing charge with one another.

It would have been obvious under 35 USC 103(a) to one of ordinary skill in the art at the time of the invention was made to modify Yamashita, 5,890,432, by Dingwall et al., 5,332,997, for the motivation of reducing the time to preform the digital to analog conversion and reducing the number of components to increase the yield and reliability of the circuit (see lines 53-65, column 2 of Dingwall et al., 5,332,997).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371⁶ of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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10. Claims 17-24, 28-33 and 38-40 are, insofar as understood, rejected under 35 U.S.C. 102(e) as being anticipated by Watson et al., 6,154,162.

Watson et al., 6,154,162, discloses in Figs. 3-4 a digital signal processing system comprising:

scrambler 42;

switched capacitor 32 including capacitors 70, 72 and 74 sharing charge with each other since charge is simply redistributed with the switched-capacitor (see lines 23-26, column 1; lines 36-39, column 2);

an output analog voltage which is indicative/equivalent of the multi-bit digital input (see lines 46-47, column 2) and when the digital input bits are low the output analog voltage is decreased using less than all of the redistributed charge (see lines 63-65, column 5).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321[©] may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-9 and 34-37 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 09/575,561. Although the conflicting claims are not identical, they are not patentably distinct from each other because the two analog signals as recited in claims 1-9 and 34-37 of the present invention are obviously read on the two analog signals as recited in claims 1-17 of copending application No. 09/575,561.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRONG PHAN whose telephone number is (703) 308-4870 and email address is trong.phan@uspto.gov

A handwritten signature in cursive script, appearing to read 'phan trong'.

**TRONG PHAN
PRIMARY EXAMINER**